

We claim:

1. A filter cartridge for filtering a slurry composition comprising:

a hollow housing having an inlet and an outlet,
said hollow housing being filled with a filtration medium and being free of an open void volume upstream of said filtration medium,
said filtration medium comprising depth filter segments separated by annular spacers.

2. The filter cartridge of claim 1 wherein the filtration medium is formed of a depth filter, the filtration medium being divided into a plurality of segments by two or more spacers spaced apart from each other along an inner length of a filter cartridge housing, the two or more spacers having one or more openings to allow fluid to pass there through along a defined path defined by the configuration of the open portions of the two or more spacers.
3. The filter cartridge of claim 1 wherein the hollow housing has a first end containing the inlet and the outlet, a conduit within said housing providing fluid communication from said inlet to a second end of said housing, said hollow housing being filled with a filtration medium in the form of a depth filter, said filtration medium being divided into a plurality of segments by two or more spacers spaced apart from each other along the length of a filter cartridge housing, each of the two or more spacers having one or more openings to allow fluid to pass there through along a defined path defined by the configuration of the one or more openings of the two or more spacers.
4. The filter cartridge of claim 1 wherein said filtration medium is a depth filter selected from the group consisting of a wound depth filter formed of nonwoven fibers, a stack of sheets wherein each sheet comprises nonwoven fibers and a fibrous mass of nonwoven polymeric fibers secured together by mechanical entanglement of the fibers.

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5. The process for filtering a slurry which comprises passing a slurry through a conduit positioned within a filtration cartridge and from said conduit through a depth filter, said cartridge being free of an open void volume upstream of said depth filter, said depth

filter comprising depth filter segments separated by annular spacers and recovering a filtered slurry from said cartridge.

6. The process of claim 5 wherein said depth filter segments are selected from the group consisting of a wound depth filter comprising nonwoven fibers, a stack of sheets wherein each sheet comprises nonwoven fibers and a fibrous mass of nonwoven polymeric fibers secured together by mechanical entanglement of the fibers.
7. The process of claim 5 wherein said slurry is selected from the group consisting of a silica-based slurry, an alumina-based slurry, a ceria-based slurry, a diamond-based slurry, a MnO_2 -based slurry, a cell broth, a photoresist chemical, a fermentation liquid, blood, a blood fraction and a transgenic liquid.
8. The process of claim 5 wherein said slurry is selected from the group consisting of a silica-based slurry, an alumina-based slurry, a ceria-based slurry, a diamond-based slurry and a MnO_2 -based slurry.
9. The process of claim 5 wherein said slurry is selected from the group consisting of a cell broth, a photoresist chemical, a fermentation liquid, blood, a blood fraction and a transgenic liquid.
10. The process of claim 5 wherein said slurry is a transgenic milk.
11. The process of claim 5 wherein said slurry is selected from the group consisting of blood and a blood fraction.
12. The filter cartridge of claim 1 wherein the spacers are configured to seal the inner surfaces of the filter cartridge housing to prevent channelling of the fluid being filtered along the inner surfaces of the housing.
13. The filter cartridge of claim 1 wherein the spacers are formed of annular inner spacers and annular outer spacers throughout the height of the housing.
14. The filter cartridge of claim 1 wherein the spacers can be retained in position by retainers.

CeO_2
Cerium Dioxide
white compound
used in
Ceramics

15. The filter cartridge of claim 1 wherein the spacers are retained in position by retainers and the retainers are snap rings which fit into grooves of the interior wall of the housing.
16. The filter cartridge of claim 1 wherein the spacers have an open central volume portion.
17. The filter cartridge of claim 1 further comprising small spaces formed between the filter segments adjacent the spacers.
18. The filter cartridge of claim 1 further comprising small spaces formed between the filter segments adjacent the spacers and wherein the spaces have a height of less than about 0.12 inch (0.3048 cm).
19. The filter cartridge of claim 1 further comprising small spaces formed between the filter segments adjacent the spacers and wherein the spaces have a height of less than about 0.09 inch (0.2286 cm).
20. The filter cartridge of claim 1 wherein the spacers have an internal spacer segment and an external spacer segment connected together by two or more ribs.
21. The filter cartridge of claim 1 wherein the spacers have an internal spacer segment and an external spacer segment connected together by two or more ribs and the internal spacer has one or more holes.